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PART IV

ENVIRONMENTAL PROTECTION AGENCY

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BASIC OXYGEN PROCESS FURNACES

Standards of Performance For New Stationary Sources

ENVIRONMENTAL PROTECTION AGENCY

[40 CFR Part 60]

[FRL 684–5]

STANDARDS OF PERFORMANCE FOR NEW STATIONARY SOURCES

Iron and Steel Plants: Basic Oxygen Process Furnaces

Notice is hereby given that under sections 111, 114, and 301 of the Clean Air Act, as amended, the Administrator is proposing amendments to the standards of performance for basic oxygen process furnaces (BOPF).

SUMMARY OF PROPOSED AMENDMENTS

The proposed amendments to the standards of performance for BOPF facilities would limit the opacity of emissions from the control device, require monitoring of operations of the control device, and clarify the term "startup" as it applies to BOPF facilities. Compliance with the proposed opacity limits would be determined by conducting observations in accordance with Reference Method 9. The continuous monitoring of operations is specific to venturi scrubber emission control equipment because all presently planned facilities will be controlled by venturi scrubbers. The proposed monitoring provisions require continuous monitoring of the pressure loss across the throat of the scrubber and the water supply pressure to the scrubber. As the provisions of 40 CFR 60.11(c) apply to BOPF facilities, "startup" means the setting into operation of a BOPF which has been out of production for a continuous time period of eight hours or the setting into operation of a relined BOPF.

BACKGROUND

On June 11, 1973 (38 FR 15406), the Administrator proposed as Subpart N to 40 CFR Part 60, standards of performance for new basic oxygen process furnaces (BOPFs). The proposed standards limited particulate matter emissions to no more than 50 mg/dscm (0.022 gr/dscf) and to less than 10 percent opacity except for two minutes in any one hour. Commenters on the proposed standards pointed out the inappropriateness of the two minutes per hour exemption for the cyclic steel production process and the unachievability of the level of the proposed opacity standard. Evaluation of the comments on the proposed standard led EPA to conclude that further study was required for development of adequate provisions. On March 8, 1974 (39 FR 9308), the Administrator promulgated the standard of performance limiting emissions from new BOPFs to less than 50 mg/dscm; however, the opacity standard and the attendant continuous monitoring requirement were not promulgated at that time. The opacity standard was reserved pending study of (1) the reasons for the observed variations in the opacity of emissions from well-controlled facilities and (2) the effect that exempting periods of startup, shutdown, and malfunction from applicability of opacity standards would have on the level of the opacity standard and the need for a time exemption.

On November 12, 1974 (39 FR 39872), EPA revised Reference Method 9 and the general provisions applicable to opacity standards of performance. Reference Method 9, the method for determining compliance with opacity standards, was revised to require that opacity observations be recorded at 15-second intervals with a minimum of 24 observations (six minutes), to obtain sufficient observations to ensure acceptable accuracy. The use of sets of opacity observations (or six-minute average opacity values) precludes a single high reading from being considered a violation. In addition, § 60.11(e) was added to the general provisions to provide a means for an owner or operator to petition EPA to obtain a higher opacity standard for any facility that demonstrates compliance with the mass standard concurrent with failure to achieve the opacity standard. Section 60.11(e) allows opacity standards to be established at levels which reflect the maximum expected effects of the normal range of operating variables and stack diameters at well-controlled new facilities.

In light of the Method 9 revisions and the questions on the appropriate emission limitation and format for the opacity standard, additional opacity data were obtained and the bases and rationale for an opacity standard for BOPFs were thoroughly reevaluated. The reevaluation included consideration of the effects on opacity of process variations, of variations in performance characteristics of control devices, and of definition of startup periods for BOPFs. The proposed opacity standards are established at levels which are achievable by well-maintained and properly operated control equipment capable of reducing emissions to the level of the concentration standard, 50 mg/dscm (0.22 gr/dscf). Copies of the report on the data bases and rationale for the proposed opacity standard may be obtained upon written request from the EPA Public Information Center (PM–215), Environmental Protection Agency, Washington, D.C. 20460 (specify: Background Information for an Opacity Standard of Performance for Basic Oxygen Process Furnaces in Iron and Steel Plants).

ENVIRONMENTAL AND INFLATIONARY IMPACT

Opacity standards are set at levels which ensure proper operation and maintenance of the control system, but which do not require use of a more efficient system. The opacity standards and the continuous monitoring requirements proposed herein do not impose any additional significant requirements or costs over those required to comply with the concentration standard. Therefore, this proposal is not considered a major action under the Inflationary Impact Statement (IIS) program and no IIS is required. The environmental impacts of the standards of performance for BOPFs also are incurred in complying with the concentration standard. During the development of the concentration standard, the intermedia effects of the standard were assessed and determined to be negligible. No additional intermedia effects would be incurred in complying with opacity standards for BOPFs. Therefore, a formal environmental impact statement has not been prepared. The environmental impact of the proposed opacity standards is beneficial as the standards would ensure compliance of new BOPFs with the concentration standard throughout their operational life.

DATA BASE FOR A STANDARD

The standard of performance limits emissions from all new basic oxygen process furnaces to less than 50 mg/dscm (0.22 gr/dscm). Emissions from basic oxygen process furnaces can be controlled to this level by use of a well-designed and operated high energy venturi scrubber or an electrostatic precipitator. In the development of an opacity standard for BOPFs, opacity observations were conducted at six facilities according to the procedures of Method 9 (39 FR 39872). Because of a known difference between the particle size distributions, and hence light scattering properties, of emissions from bottom blown BOPFs and top blown BOPFs, the opacity of emissions from both type furnaces were investigated in the background study on a standard.

The facilities observed in the study were representative of several control levels based on available particulate matter emission data and an engineering judgment of the current condition of the control system. The condition of the control system was assessed on the basis of review of operating parameters, design parameters, and maintenance condition of the control system. From the observation of six facilities, it was noted that higher emissions occurred at the beginning of the steel production cycle for both types of control systems. The higher opacity emissions are attributable to the greater evolution rate of particulate matter and the lower gas temperature at the start of the oxygen blow as well as a lag in the response of the control device. For scrubber-controlled top or botton blown BOPFs the six minute average opacity levels observed at the start of oxygen blow were less than 20 percent, and the six minute average opacity levels during the remainder of the cycle were less than 10 percent opacity. Electrostatic precipitator controlled facilities exhibited opacity levels less than 30 percent during the start of oxygen blow and levels less than 16 percent during the remainder of the cycle. The difference between the opacity levels observed for the two types of control system primarily reflects differences in diameter of discharge stacks rather than significant differences in the performance.

RATIONALE FOR THE PROPOSED STANDARD

Section 111 of the Act requires EPA to set emission standards which reflect "the degree of emission limitation achievable through application of the best system of emission reduction which (taking into account the cost of achieving such re-

duction) the Administrator determines has been adequately demonstrated." The standards of performance require an owner or operator to conduct a performance test after the initial startup of an affected facility to ensure that the control system was properly designed and installed. Section 111(e) of the Act requires that new sources continue to be in compliance with the standards throughout their operational life. Opacity standards are established in conjunction with mass or concentration standards as a means of ensuring that control equipment is adequately maintained and properly operated at all times between performance tests.

In EPA's judgment, the opacity levels associated with well-designed and operated facilities differed by type of control system due to design features. Therefore, selection of the emission limitation for the standard required consideration of whether the level would ensure proper operation and maintenance of all facilities. In the development of the proposed standard EPA considered several alternative regulatory approaches. The alternatives considered included opacity levels based on data from electrostatic precipitator-controlled facilities, separate opacity limitations for electrostatic precipitator-controlled and scrubber-controlled facilities, and an opacity level based on data from scrubber-controlled facilities. An opacity standard based on performance of electrostatic precipitator-controlled systems was not selected because the standard would not require proper operation and maintenance of venturi scrubber-controlled facilities. In addition, the steel industry currently has no plans for the construction of any new electrostatic precipitator-controlled BOPF facilities, thus this standard would not accomplish its intended purpose. Setting separate opacity standards for the two control systems was also rejected because only one of the control systems is expected to be used. Thus the proposed opacity standard is based on the performance of scrubber-controlled facilities. Should any affected BOPF be controlled with an electrostatic precipitator and comply with the particulate limit of 50 mg/dscm but not the opacity limits, a separate opacity limit would be established for that facility under 40 CFR 60.11(e). The provisions of 40 CFR 60.11(e) allow owners or operators of sources which exceed the opacity standard while concurrently achieving the concentration standard to request establishment of a specific opacity standard for that facility.

The proposed standard would limit peak opacity which occurs at the beginning of the cycle and the opacity over the remainder of the cycle. The opacity limit for the beginning of the cycle is necessary because of the increased particulate loading and gas density at the startup of the operation. Emissions during the period of startup of the production cycle are not excluded from the opacity standard as a "startup" under the provisions of 40 CFR 60.11(c) because emissions during this period are subject to the concentration standard and are controllable.

The proposed standard would limit emissions during the beginning of the production cycle to less than 20 percent opacity and emissions over the remainder of the cycle to less than 10 percent opacity. To simplify enforcement, the opacity standard would allow the period of higher opacity emissions to occur once per steel production cycle. Restriction of the higher opacity emission period to the beginning of the production cycle would require the observer to synchronize observations with shop operations. In addition, the proposed standard could be enforced more readily at facilities with several furnaces ducted to a single, common control system.

Standards of performance for new sources established under section 111 of the Clean Air Act reflect emission limits achievable with the best adequately demonstrated systems of emission reduction considering the cost of such systems. State implementation plans (SIP's) approved or promulgated under section 110 of the Act, on the other hand, must provide for the attainment and maintenance of national ambient air quality standards (NAAQS) designed to protect public health and welfare. For that purpose SIP's must in some cases require greater emission reductions than those required by standards of performance for new sources. In addition, States are free under section 116 of the Act to establish more stringent emission limits than those established under section 111 or those necessary to attain or maintain the NAAQS under section 110. Thus, new and existing sources may in some cases be subject to limitations more stringent than EPA's standards of performance under section 111.

PUBLIC PARTICIPATION

In accordance with section 117(f) of the Act, publication of these proposed amendments to 40 CFR Part 60 was preceded by consultation with appropriate advisory committees, independent experts, and Federal departments and agencies. Interested persons may participate in this rulemaking by submitting written comments (in triplicate) to the Emission Standards and Engineering Division, Environmental Protection Agency, Research Triangle Park, North Carolina, 27711, Attention: Mr. Don R. Goodwin. Comments on all aspects of the proposed amendments to the regulation are welcome, including economic and technological issues. All comments received not later than May 2, 1977, will be considered. Comments received will be available for public inspection at the EPA Public Information Reference Unit (EPA Library), Room 2922, 401 M. Street, SW., Washington, D.C. 20460.

(Sec. 111, 114, 301(a), Clean Air Act, as amended, Pub. L. 91-604, 84 Stat. 1678 (42 U.S.C. 1857c-6, 1857c-9, 1857g(a)).)

NOTE.—The Environmental Protection Agency has determined that this document does not contain a major proposal requiring preparation of an Economic Impact Statement under Executive Order 11949.

Dated: February 23, 1977.

JOHN QUARLES,
Acting Administrator.

It is proposed to amend Part 60 of Chapter I, Title 40 of the Code of Federal Regulations as follows:

1. The table of sections is amended by revising Subpart N as follows:

Subpart N—Standards of Performance for Iron and Steel Plants

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Sec.
60.143 Monitoring of operations.

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2. Section 60.3 is amended by adding a new abbreviation as follows:

§ 60.3 Abbreviations.

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Pa—pascal.

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Subpart N—Standards of Performance for Iron and Steel Plants

3. Section 60.142 is amended by adding paragraph (a)(2) and (b) as follows:

§ 60.142 Standard for particulate matter.

(a) * * *

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(2) Exit from a control device and exhibit 10 percent opacity or greater, except that an opacity of greater than 10 percent but less than 20 percent may occur once per steel production cycle.

(b) For purposes of this subpart, "startup" means the setting into operation of a BOPF which has been out of production for a minimum continuous time period of eight hours or the setting into operation of a relined BOPF

4. A new § 60.143 is added as follows:

§ 60.143 Monitoring of operations.

(a) The owner or operator of an affected facility shall maintain daily records of the time and duration of each steel production cycle.

(b) The owner or operator of any affected facility that uses venturi scrubber emission control equipment shall install, calibrate, maintain, and continuously operate the following monitoring devices:

(1) A monitoring device for the continuous measurement of the pressure loss through the venturi construction of the control equipment. The monitoring device is to be certified by the manufacturer to be accurate within ±250 Pa (±1 inch water).

(2) A monitoring device for the continuous measurement of the water supply pressure to the control equipment. The monitoring device is to be certified by the manufacturer to be accurate within ±5 percent of the design water supply pressure. The pressure sensor or tap must be located close to the water discharge point. The Administrator may be consulted for approval of alternative locations for the pressure sensor or tap.

(c) All monitoring devices required under paragraph (b) of this section are

to be recalibrated annually, and at other times as the Administrator may require, in accordance with the procedures under § 60.13(b)(3).

(d) Any owner or operator subject to requirements under paragraph (b) of this section shall report for each calendar quarter all measurement results that are more than 10 percent below the average levels maintained during the most recent performance test conducted under § 60.8 which the affected facility demonstrated compliance with the standard under § 60.142(a)(1). The accuracy of the respective measurements, not to exceed the values specified in paragraphs (b)(1) and (b)(2) of this section, may be taken into consideration when determining the measurement results that must be reported.

(Secs. 111, 114, 301(a), Clean Air Act, as amended, Pub. L. 91-604, 84 Stat. 1678 (42 U.S.C. 1857c-6, 1857c-9, 1857g(a)).)

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